

## **Structure and Method to Increase Density of MIM Capacitors in Damascene Processes**

### **ABSTRACT OF THE DISCLOSURE**

A high density MIM capacitor structure and method of manufacturing the  
5 same is disclosed for integrated circuits having multiple metal layer interconnections. The  
capacitor structure is formed between selected first and second metallic interconnections  
which are separated by an insulating intermetallic oxide layer. A first metal-dielectric-metal  
layer capacitor is created over and with a portion of the first metallic interconnection and a  
second metal-dielectric-metal layer capacitor is created under and with a portion of the  
10 second metallic interconnection. A first metal via through the insulating intermetallic oxide  
layer connects the first metal-dielectric-metal layer capacitor and the second metal-dielectric-  
metal layer capacitor to form a first terminal of the capacitor structure and a second metal via  
through the insulating intermetallic oxide layer connects the first metallic interconnection  
portion and the second metallic interconnection portion to form a second terminal of the  
capacitor structure. Damascene processes are used to manufacture the multiple metal layer  
interconnections.

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